TSM107

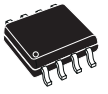
Triple Operational Amplifier and Voltage Reference

Operational Amplifier:

- **Medium bandwidth (unity gain): 0.9MHz**
- **Large output voltage swing: 0V to (V_{CC} - 1.5V)**
- **Input common mode voltage range includes ground**
- **Wide power supply range: 3.8 to 32V ±1.9 TO ±16V**
- **1.5kV ESD Protection (HBM)**

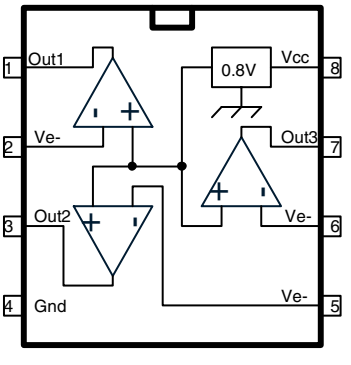
Voltage Reference:

- **Fixed output voltage reference 0.83V**
- **±1.6% Voltage precision including Vio**



D
SO-8
(Plastic Micropackage)

PIN CONNECTIONS (top view)



Description

The TSM107 is a monolithic IC that includes three op-amp for which the non-inverting input is wired to a 0.83V fixed voltage reference. This device offers both space and cost savings in many applications such as power supply management or data acquisition systems..

Order Codes

Part Number	Temperature Range	Package	Packaging	Marking
TSM107ID	-40°C, +105°C	SO	Tube	M107
TSM107IDT			Tape & Reel	

1 Absolute Maximum Ratings

Table 1. Key parameters and their absolute maximum ratings

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	36	V
V_{id}	Differential Input Voltage	36	V
V_i	Negative Input Voltage	-0.3 to Vcc + 0.3V	V
T_{oper}	Operating Free-air Temperature Range	-40 to +105	°C
T_j	Maximum Junction Temperature	150	°C
R_{thja}	Thermal Resistance Junction to Ambient (SO package)	175	°C/W
T_l	Maximum Lead Temperature (10 seconds maximum)	260	°C
ESD	Electrostatic Discharge Protection	1.5	kV

2 Electrical Characteristics

Table 2. General electrical characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit
I_{CC}	Total Supply Current Vcc+ = 5V, no load Tmin. < Tamb < Tmax. Vcc+ = 30V, no load Tmin. < Tamb < Tmax		2.5 5.5	4.5 6 8.5 10	mA

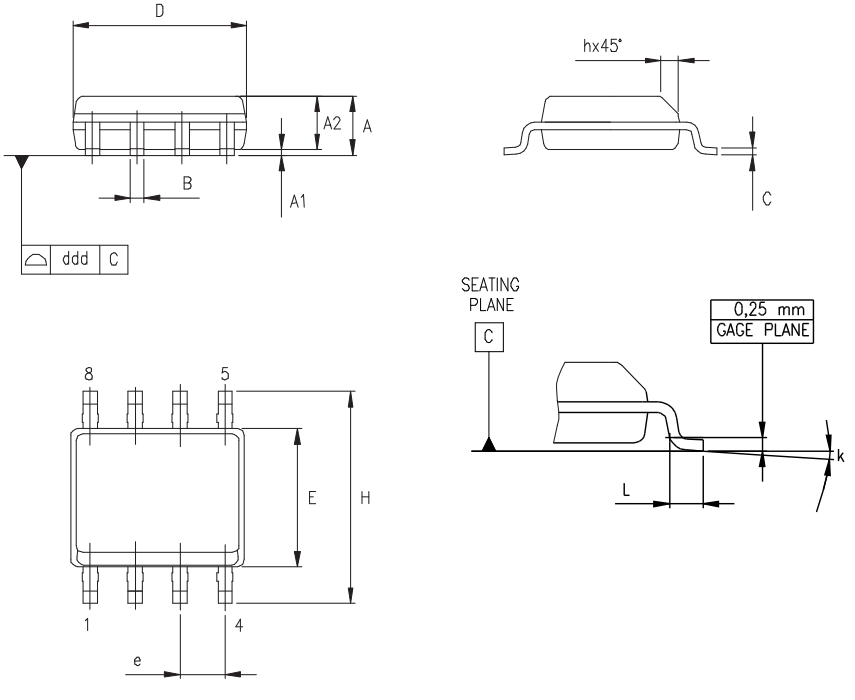
Table 3. Electrical characteristics for operator/ VCC+ = +5V, VCC- = Ground, Tamb = 25°C (unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit
Vref + V_{io}	Input Offset Voltage T_{amb} = 25° $T_{min.} \leq T_{amb} \leq T_{max.}$	0.818 0.748	0.83	0.842 0.872	V
I_{ib}	Input Bias Current negative input		20		nA
I_{source}	Output Current Source V_o = 2V V_{CC} = +15V	20	40		mA
I_o	Short Circuit to Ground V_{CC} = +15V		40	60	mA
I_{sink}	Output Current Sink V_{CC} = +15V, V_o = 2V	10	20		mA
V_{OH}	High Level Output Voltage V_{CC}^+ = 30V T_{amb} = 25°C, R_L = 10k $T_{min.} \leq T_{amb} \leq T_{max.}$	27 27	28		V
V_{OL}	Low Level Output Voltage R_L = 10k $T_{min.} \leq T_{amb} \leq T_{max.}$		5	20 20	mV

3 Package Mechanical Data

SO-8 MECHANICAL DATA

DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	1.35		1.75	0.053		0.069
A1	0.10		0.25	0.04		0.010
A2	1.10		1.65	0.043		0.065
B	0.33		0.51	0.013		0.020
C	0.19		0.25	0.007		0.010
D	4.80		5.00	0.189		0.197
E	3.80		4.00	0.150		0.157
e		1.27			0.050	
H	5.80		6.20	0.228		0.244
h	0.25		0.50	0.010		0.020
L	0.40		1.27	0.016		0.050
k	8° (max.)					
ddd			0.1			0.04



0016023/C

4 Revision History

Date	Revision	Description of Changes
01 Dec. 2004	1	First Release

Information furnished is believed to be accurate and reliable. However, STMicroelectronics assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of STMicroelectronics. Specifications mentioned in this publication are subject to change without notice. This publication supersedes and replaces all information previously supplied. STMicroelectronics products are not authorized for use as critical components in life support devices or systems without express written approval of STMicroelectronics.

The ST logo is a registered trademark of STMicroelectronics
All other names are the property of their respective owners

© 2004 STMicroelectronics - All rights reserved

STMicroelectronics group of companies
Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America
www.st.com